



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,763	06/27/2003	Brian Michael Davis	134068	7169

30503 7590 11/23/2004

STEVEN J. ROSEN, PATENT ATTORNEY
4729 CORNELL RD.
CINCINNATI, OH 45241

EXAMINER

ELVE, MARIA ALEXANDRA

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 11/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,763

Applicant(s)

DAVIS ET AL.

Examiner

M. Alexandra Elve

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/27/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 6/27/03 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. The four references under Other Documents were not submitted.

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lahrman et al. (US Pat. 6,462,308) in view of Suh et al. (US Pat. 6,629,464).

Lahrman et al. discloses an apparatus and a method, which uses natural frequency to determine if a laser shock peening process is sufficient and acceptable.

Laser shock peening introduces high compressive residual stresses within a workpiece. Additionally, laser shock peening is applied to locations on a workpiece to modify the natural frequency of the workpiece and improve the operational characteristics of the part. The resulting frequency shift is compared to a predetermined acceptable range of frequency shift in order to determine if the workpiece has been sufficiently shock peened and to an acceptable level. The frequency measuring device (vibration response means) may be associated with the laser, with the positioning device or a physically separate device. Various mechanism and means may be used for determining the frequency of the workpiece. A controller may be utilized to store and compare the frequency responses. The controller operates the laser system and measures real time frequencies and makes modifications in real time. (abstract, figures, col. 1, lines 40-67, col. 2, lines 1-25, col. 3, lines 58-67, col. 4, lines 1-5, col. 5, lines 46-67, col. 6, lines 1-5)

Lahrman et al. does not teach pass/fail criteria, cycle fatigue testing, and the presence of a flaw or a detector placed on the workpiece.

Suh et al. discloses a method of quality control monitoring of laser shock peening a workpiece. An acoustic signal of each laser pulse/plasma is measured and a statistical function value is calculated and compared to pass/fail criteria for accepting or rejecting workpieces. The criteria may be based on a pre-determined correlation of test pieces statistical function data based on high cycle fatigue failure test data.

The pass or fail criteria may be based on a pre-determined correlation of test piece statistical function data. More particular embodiments use high cycle fatigue

failure based on high cycle fatigue tests of test pieces. The test pieces may have a failure precipitating flaw within a laser shock peened area of the test piece that was laser shock peened in the same or similar laser shock peening apparatus.

Two exemplary types of acoustic signal monitoring devices are disclosed. The first type is an acoustic transducer mounted to the workpiece (210), which detects acoustic signals through the workpiece. The second type is a microphone located away from the workpiece (212), which detects airborne acoustic signals. The acoustic signals may be used to calculate various types of acoustic energy parameters of the laser pulse or plasma. (abstract, figures, col. 3, lines 4-19, col. 8, lines 5-29)

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a pass/fail criteria, cycle fatigue testing, the presence of a flaw and a detector placed on the workpiece, as taught by Suh et al. in the Lahrman et al. system because of improved accuracy of measurements, quality control, workpiece longevity under operating conditions and improved operating characteristics of the workpiece.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

Art Unit: 1725

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 20, 2004.



M. ALEXANDRA ELVE
PRIMARY EXAMINER